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speech signal using perception based analysis by synthesis which provides a very robust performance and is independent of the input speech signals (column 1, lines 44-47).

Figure 2B of Yeldener illustrates a noise spectrum generator. In column 4, lines 59-64, Yeldener describes that, for the unvoiced part of the excitation spectrum, a white random noise spectrum normalized to excitation band energies, is used for the frequency components that fall above the cut-off frequency ($\omega > \omega_c$). The voiced and unvoiced excitation signals are then added together to form the overall synthesized excitation signal.

In Figure 2B of Yeldener, the noise spectrum is subjected, in series, to energy normalization, inverse FFT and "overlap & add" operations. Therefore, the noise spectrum is not shaped in relation to linear prediction filter coefficients. The LPC filter of Figure 2B is the synthesis filter of the decoder. This synthesis filter generates the reconstructed speech and, therefore, is not related to shaping the spectrum of a noise sequence in view of producing or recovering a previously lost high frequency signal content.

In Figure 2B of Yeldener, the adder operation adds the voiced and unvoiced excitation signals to form the overall synthesized excitation signal. The resultant excitation is then shaped by a linear time-varying LPC filter to form the final synthesized speech. In order to enhance the output speech quality and make it cleaner, a frequency domain post-filter is used.

Accordingly, Figure 2B of Yeldener fails to describe injection of a spectrally-shaped noise sequence in a synthesized signal version to thereby produce the full-spectrum synthesized wideband signal.

Regarding Figure 1, Yeldener in column 3, lines 21-53, describes an Analysis By Synthesis error minimization procedure which is applied to choose the most optimal pitch estimate. First, a segment of speech signal $S(n)$ is analyzed in an LPC analysis section 3 where linear predictive coding (LPC) is used to obtain LPC filter coefficients. The segment of speech is then passed through an LPC inverse filter 4 using the estimated LPC filter coefficients in order to provide a residual signal which is spectrally flat.

Contrary to the examiner's suggestion, the LPC inverse filter is not a spectral shaping unit for shaping the spectrum of a noise sequence. The input signal $S(n)$ to the filter 4 is defined by Yeldener as being an input speech signal and not a random noise sequence.

Accordingly, the chain 4-5-6-7-8-9 of Figure 1 of Yeldener is used to generate a reference speech signal. Chain 4-5-6-10-11-12-13 of Figure 1 of Yeldener is used to generate a synthetic speech signal. Therefore, none of these two chains is used, as defined in claim 1 of the present patent application, to produce a high frequency content of a speech signal.

The adder 14 of Figure 1 of Yeldener calculates a signal to noise ratio. It is not used to inject a spectrally-shaped noise sequence in a synthesized signal version to produce a full-spectrum synthesized wideband signal.

The claims have been amended to define, as suggested by the examiner, all the elements in all the equations.

In view of the above, Applicant believes the pending application is in condition for allowance.

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Respectfully submitted,

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